The Effect of Natural Hair on Stereotype Activation

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Abstract

Black women incur social and economic costs for wearing their natural hair. They have been denied employment, expelled from schools and fired from jobs for choosing to wear their natural hair. This research uses the evaluative priming procedure to assess whether Black women who wear natural (versus relaxed) hair elicit greater stereotype activation among White perceivers. Participants briefly viewed photo primes of individuals then categorized adjectives as "good" or "bad" as quickly as possible without compromising accuracy. In Study 1, the race of the photo prime (Black versus White), the hairstyle of the photo prime (natural versus relaxed), and the valence of the adjective (positive versus negative) were manipulated in a within-subjects design. Stronger stereotype activation was indicated by a quicker response time to the adjectives. There was no significant interaction of target race and valence in Study 1. The predicted three-way interaction between race, hairstyle, and valence was also not statistically significant. In Study 2, target facial expression replaced the target race manipulation from Study 1 to determine if a positive social cue could attenuate the effects of natural hair on stereotype activation. The results showed that the interaction between facial expression, hair type, and valence was not statistically significant. However, a significant two-way interaction between facial expression and valence emerged indicating that facial expression did prime response time for adjectives.

Black women experience unique forms of discrimination due to their race and gender. Black women have been denied employment (Campbell, 2018), expelled from schools (Bennett, 2017), and fired from jobs (Santi, 2019) for choosing to wear their natural hair. The term "natural hair" refers to hair that has not been chemically altered. This type of hair typically ranges from loose curls to tight coils. In contrast, "relaxed" hair is Black hair that has been chemically straightened using a cream product called a relaxer. Despite the wealth of information examining the interpersonal consequences of wearing natural (versus relaxed) hair, little research examines the psychological mechanisms underlying this form of discrimination. In the present work, I investigate whether Black women incur greater stereotypes as a function of choosing to wear their natural (versus relaxed) hair.

A rise of anti-bias norms discourages overt expressions of racial prejudice in the United States (Crandall & Eshlemann, 2003; Plant & Devine, 1998). However, a wealth of psychological research indicates that, although people claim to be non-prejudiced, they can still hold implicit stereotypes toward stigmatized groups (Fazio & Olson, 2003). In other words, people can unconsciously associate negative traits (e.g., laziness, stupidity) with negatively-stereotyped groups (e.g., Black people). Regardless of the extent to which people personally endorse the validity of these associations, these implicit stereotypes may still influence their behavior and decision-making (Wheeler & Petty, 2001). For example, even if someone does not consciously endorse negative stereotypes about a social group, these stereotypes can be unconsciously activated from memory and can subsequently influence thinking and behavior (Devine, 1989, Fazio, Jackson, Dunton, & Williams, 1995). In light of these findings, I examine how Black hairstyles affect the automatic activation of stereotypes from memory among White perceivers.

The Evaluative Priming Procedure

The most common way of measuring stereotype activation is the evaluative priming procedure (Fazio et al., 1995). In this procedure, participants briefly encounter images of negatively-stereotyped or positively-stereotyped group members. Immediately following the presentation of these targets, individuals are asked to judge whether trait adjectives are positive or negative in valence. In the evaluative priming procedure, stereotype activation is measured by response latency. In other words, individuals will respond faster to an adjective to the extent the preceding picture activates thoughts associated with the word. For example, individuals will be quicker to categorize the word "criminal" as bad if a Black (versus White) target's photograph precedes the word. By applying the stereotype content of Black women to this procedure, I can assess whether Black women with natural versus straightened hair elicit greater stereotype activation among White perceivers.

Intersectionality, Stereotyping, and Prototypicality

Previous research investigates the stereotype content attributed to Black women. Black women belong to multiple stigmatized groups and are subordinate members of both their race and gender (Crenshaw, 1989). Ghavami & Peplau (2012) examined the stereotype content of people who belong to multiple groups. In their study, they assessed the stereotype content of men and women in general, Black people in general, Black men, and Black women. Their results showed that the attributes listed for Black people included "poor", "ghetto", and "uneducated." However, the stereotypes attributed to Black women and Black men differed. Black men were commonly characterized as "criminal" and "dangerous" whereas Black women were characterized as "promiscuous" and "confident." Because Black women are members of two marginalized groups (i.e., Black people and women), I also examined stereotypes commonly

attributed to women. According to Ghavami & Peplau, these stereotypes included “soft”, “emotional”, and “caring.” Many of these characteristics are contradictory to the stereotypes for Black people. However, some stereotypes, like “talkative” and “motherly”, were consistent across both groups. In general, this research suggests that Black women encounter unique forms of stereotyping not attributable to women or Black individuals in general. By identifying the stereotypes uniquely associated with Black women, I can measure if these attributes are automatically activated and what factors predict the strength of their activation.

While past research documents the stereotype content of Back women in general (Ghavami & Peplau, 2012), few studies have focused on social cues that affect the activation of these stereotypes. Specifically, stereotype activation can be influenced by the characteristics of the target. Previous research suggests that individuals who are more prototypical of their group experience more prejudice. For example, Maddox & Gray (2002) found that skin tone is an important factor in stereotypic categorization of Black people. Their study suggested that Black people with darker skin are perceived as more stereotypic than Black people with lighter skin. This suggests that individuals who are perceived as being more prototypical of their group will elicit stronger activation of group-related stereotypes.

The relationship between prototypicality and stereotyping has been found for other physical characteristics as well. For example, Black people who are perceived as “more Black” - due to darker skin color, a broader nose, or other facial features - are punished more severely than their Black counterparts who have less prototypical traits (Harris, 2008). Examples of the consequences of being prototypical of a marginalized group are documented in multiple studies. People with more “Afrocentric” features, or more facial features associated with Black people, are more likely to be memorable in news stories about criminals (Dixon & Maddox, 2006) and to

have harsher criminal sentences despite committing equally serious crimes as people without these features (Blair, Judd, & Chapleau, 2004). In another study, Afrocentric features determined stereotypic judgment. Participants were more likely to deem Black men with Afrocentric features to be more stereotypic than Black men with fewer Afrocentric features (Blair et al., 2002). This impact of phenotypic characteristics can also be reflected through brain imaging. In one study, White participants showed higher levels of amygdala activity (i.e., fear response) when they viewed photos of darker skinned people compared to photos of lighter-skinned people (Ronquillo et al., 2007). Together, these studies demonstrate that stereotype activation is stronger for individuals who are more prototypical members of their group.

Present Research

Despite previous research on different cues of prototypicality and stereotype activation, no research has conceptualized Black hair as a prototypical cue and examined its subsequent impact on stereotype activation. In the present study, I examine how natural Black hair (versus chemically-treated straightened Black hair) may activate stronger stereotypes among White perceivers. Consistent with previous research (Fazio et al., 1995), I hypothesize that exposure to images of Black women will lead to more stereotype activation than images of White women (i.e., a faster response latency to negative versus positive words). In Study 1, I test the novel hypothesis that natural hair elicits greater stereotype activation among White perceivers. To this end, I hypothesize that the difference in stereotype activation between Black and White targets will be greater when the Black target has a natural (versus relaxed) hairstyle. In Study 2, I test whether a cue of social acceptance (e.g., a smile) moderates the effects of Study 1.

Study 1

Methods

Participants

Participants were 98 White, non-Hispanic undergraduates who attended a large Midwestern university. Five participants were excluded for failing to complete the entire study and 11 were excluded for not identifying as White and non-Hispanic. Thus, all reported analyses included 82 participants. All participants received partial class credit in exchange for their participation. Participants self-reported their gender identity (45.4% male, 54.6% female), age (M = 18.90, SD = 2.29), and political ideology (48% liberal, 24% conservative, 28% independent). All participants provided consent at the beginning of the study and the study was approved by an Institutional Review Board (Protocol #2019B0295)

Design and Power

This study used a 2 (race of target: White versus Black) x 2 (hair of target: straight versus natural) x 2 (valence of adjective: positive versus negative) within-subjects design. A power analysis determined that this design had 80% power to detect an effect size of d = .23 for the hypothesized three-way interaction between target race, target hairstyle, and valence of the adjective.

Materials

Photo stimuli. To create the priming stimuli, 25 Black and 25 White undergraduate women were recruited and photographed in two different hairstyles. Each Black target took two photos: one wearing their natural hair and another photo wearing either straightened hair or a straight-style wig (see Appendix A for example stimuli). To match the visual features of the Black target photos, each White target also took two photos: one wearing straightened hair and

another wearing curly hair. To control variation between stimuli, all headshots used a consistent background, lighting, and camera position. All targets featured in Study 1 were asked to display a neutral, unexpressive face and to make eye contact with the camera.

Using Photoshop, all target photos were centered, cropped, and adjusted to have a consistent brightness. Each photo had a resolution of 640x480 pixels and was digitized at 256-bit color. After removing one target of each race due to photographic error, the resulting stimuli were 48 unique targets (24 Black, 24 White). Each target had one photograph of natural or curly hair and one photograph of straightened or relaxed hair. This resulted in 96 unique images used in the evaluative priming task.

Trait adjectives. To pre-test the trait adjectives, I conducted a pilot study. This pilot study recruited a separate sample of 120 non-Hispanic, White students who participated in exchange for course credit. In this pilot study, participants first completed a thought-listing task. Following the stereotype literature, participants were asked to list stereotypes that they were aware of regarding Black women, even if they did not personally endorse those traits (Devine, 1989). Participants were given up to 12 lines to provide their responses. After this thought-listing task, participants were shown a list of adjectives stereotypical to Black women. These adjectives were drawn from previous literature assessing stereotypes toward Black women (Ghavami & Peplau, 2012). For this trait-rating task, example items included “loud,” “promiscuous,” and “aggressive.” For each adjective, participants used a 5-point scale (1 = *Not at all,* 5 = *Extremely*) to rate how much they believed the average American would describe Black women using that trait. From this pilot data, I selected 24 trait adjectives (12 positive, 12 negative) that were commonly attributed to Black women (see Appendix B for a complete list of these 24 trait adjectives).

Procedure

The materials, procedure, and measures closely followed Fazio et al. (1995) unless otherwise specified. All participants were run in groups of up to five and completed the study at individual computer stations. Upon entering the lab, participants learned that the experiment was examining their ability to memorize words and faces. Participants were told that the study would have five separate phases. In Phases 1-3 and 5, participants completed several tasks to bolster the believability of the cover story (see Fazio et al., 1995 for a detailed description of these tasks).

Critical to my hypotheses, Phase 4 measured automatic stereotype activation using the evaluative priming procedure. In this task, participants completed 192 trials of a word judgment task where they were asked to judge a trait adjective as "good" or "bad." The sequence of each trial is illustrated in Appendix A. Each trial began with a fixation cross centered on the screen. Next, a target individual appeared in the place of the fixation cross for 315 milliseconds. Central to the target race and target hair manipulations, this photo prime displayed either a Black or White woman with either straight or natural hair. After the target's photo, another fixation cross appeared on the screen for 135 milliseconds. Finally, the trait adjective was presented for 1,750 milliseconds or until the participant responded by categorizing the word as "Good" (indicated by the "L" key) or "Bad" (the "A" key). Participants were instructed to categorize each adjective as quickly as possible without compromising accuracy. After completing the evaluative priming task, participants completed a memory task to bolster the believability of the cover story. Afterwards, participants completed several self-report measures, provided demographic information, and were debriefed and compensated.

Dependent Measures

Immediately following the evaluative priming task, participants provided several individual difference measures for exploratory purposes.

Modern racism. Using a 7-point scale (1 = *Strongly Disagree,* 7 = *Strongly Agree*), participants completed the 7-item (α = .86; e.g., "Discrimination against Black people is no longer a problem in the United States.") Modern Racism Scale (McConahay, 1986). These seven items formed a composite such that higher values indicated more racial prejudice against Black people.

Bias Awareness. Using a 7-point scale (1 = *Strongly Disagree,* 7 = *Strongly Agree*), participants completed the 4-item (α = .74, e.g., "Even though I know it's not appropriate, I sometimes feel that I hold unconscious negative attitudes toward Blacks.") Bias Awareness scale (Perry, Murphy, & Dovidio, 2015). These four items formed a composite such that higher values indicated higher cognizance of one's own personal biases.

Internal and External Motivation to Respond Without Prejudice. Using a 7-point scale (1 = *Strongly Disagree,* 7 = *Strongly Agree*), participants completed the 5-item (α = .82, e.g., "I am personally motivated by my beliefs to be nonprejudiced toward Black people.") Internal Motivation to Respond Without Prejudice Scale (IMS; Plant & Devine, 1998) and the 5-item (α = 0.77, e.g., "I attempt to appear nonprejudiced toward Black people in order to avoid disapproval from others.") External Motivation to Respond Without Prejudice Scale (EMS; Plant & Devine, 1998). Each composite represented a greater motivation to appear nonprejudiced to others due to personal standards (IMS) or social standards (EMS).

Previous outgroup contact. Using a 7-point scale (1 = *Strongly Disagree,* 7 = *Strongly Agree*) to assess past interactions with Black individuals, participants completed a 7-item (α =

.74, e.g., “In the past, my experiences with Black people have been pleasant.“) measure of previous outgroup contact (Plant & Devine, 2003). These seven items formed a composite such that higher values indicated a higher quality and quantity of previous interactions with Black individuals.

Demographics. At the end of the study, participants self-reported their age, race, gender, ethnicity, primary language, and political ideology. Political ideology was transformed into a 7-point scale where higher values indicated greater political conservatism (1 = *Very liberal,* 7 = *Very conservative*).

Results

Data Preparation

Initial analysis of participants’ response times demonstrated extreme right skewness (G_1 = 7.50). Thus, all reaction times underwent a log transformation which resulted in an acceptable skewness (G_1 = 1.07). Furthermore, a visual inspection of the Q-Q plot supported a normal distribution of the data. For the reported analyses, I used all participant trials because the average accuracy score was high across all participants (*M* = 93%, *SD* = 5%).

Analytical Strategy

In this study, the manipulation of trial type was nested within participants. Due to the nested structure of these data, I used hierarchical linear modeling (HLM) for my analyses. The Intraclass Correlation Coefficient (ICC) of the data was ρ = .89. This suggested that 89% of the variance in reaction times was due to between-person differences rather than the manipulated features of the task. Thus, this high ICC justified my use of an HLM. To test my primary hypotheses, I used HLM where reaction time was modeled as a function of target race (Black versus White), hairstyle (natural versus straight), and trait adjective (positive versus negative),

and their respective two- and three-way interactions. A random intercept accounted for the random effect of participant at level two to control for between-person differences in reaction times.

Results

The full results of the model are displayed in Table 1. Regarding main effects, target race did not significantly affect participants' response times. However, I did find a significant main effect of valence such that participants were slower to categorize negative adjectives ($M = 6.63$) than positive adjectives ($M = 6.60$), $F(1, 448) = 18.29$, $p < .001$. Likewise, a significant main effect of hairstyle emerged such that participants were quicker to categorize words after encountering straight hairstyles ($M = 6.61$) than natural hairstyles ($M = 6.63$), $F(1, 448) = 4.96$, $p = .026$, regardless of the target's race or the valence of the trait adjective.

Consistent with Fazio et al. (1995), I next predicted a two-way interaction would emerge between target race and the valence of the trait adjective. However, this two-way interaction was not statistically significant (see Figure 1), $F(1, 448) = 0.02$, $p = .888$. Interestingly, these results did not replicate the evaluative priming effect. Participants' response latency for categorizing a negative adjective was not affected by whether a Black (versus White) target preceded the negative trait.

I next turned to my primary hypothesis which predicted a three-way interaction between target race, hairstyle, and valence of the trait adjective. I hypothesized that the two-way interaction between target race and valence would be further moderated by the target's hairstyle. In other words, I predicted that the difference in stereotype activation between Black and White targets would be greater when the Black target had a natural (versus relaxed) hairstyle. However, this hypothesized three-way interaction between target race, hairstyle, and valence was not

Table 1
Study 1 Main Effects and Interactions Table

Model Term	*F*	df	*p*
Valence	18.29	448	.001
Hair Type	4.96	448	.026
Race	< 0.01	448	.927
Race *Hair Type	0.13	448	.718
Race*Valence	0.02	448	.888
Hair Type*Valence	0.09	448	.766
Race* Hair Type*Valence	0.78	448	.378

Note. A hierarchical linear model accounted for the random effect of participant on response latency.

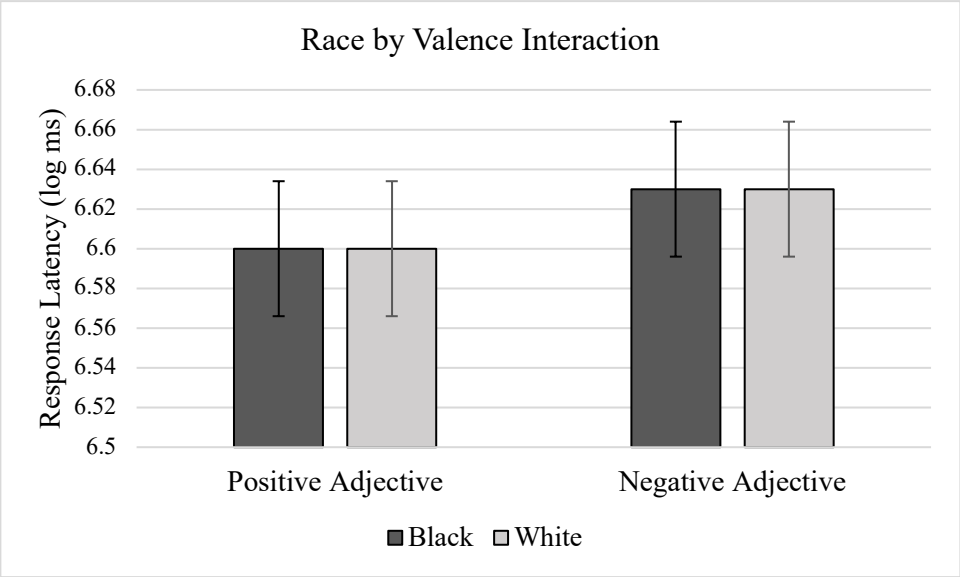


Figure 1. Interaction between target race and valence on response latency in Study 1. Error bars represent ± 1 standard error

statistically significant (see Figure 2), $F(1, 448) = .77$, $p = .378$. Thus, hairstyle did not seem to moderate the effect of target race on the automatic activation of stereotypes from memory.

Exploratory Analyses

Since these results did not support my primary hypotheses, I next conducted exploratory analyses to identify potential moderators using the individual differences collected at the end of the study. Using HLM, I tested if the three-way interaction between race, hair, and valence depended on individual differences. To do so, I mean-centered each individual difference and tested the significance of the cross-level interaction between target race, hairstyle, valence, and the moderator on participants' response latency. However, the four-way interaction was not significant for Modern Racism, $F(1, 441) = 0.90$, $p = .343$, for IMS, $F(1, 441) = 0.90$, $p = .341$, for EMS, $F(1, 441) = 0.81$, $p = .366$, for bias awareness, $F(1, 441) < .01$, $p = .960$, nor for participants' amount of previous outgroup contact, $F(1, 441) = 1.51$, $p = .218$.

Discussion

In Study 1, I investigated whether natural hair might serve as a prototypical cue for Black people and thus increase the automatic activation of stereotypes among White perceivers. My hypothesis predicted that the difference in stereotype activation between Black and White targets would be greater when the Black target had a natural (versus relaxed) hairstyle. Despite previous research (Fazio et al., 1995), participants' response times did not depend on the race of the target and the valence of the trait adjective. This suggested that participants' response latency to categorizing negative traits did not vary as a function of whether they were primed with a photo of a Black versus White woman. These results are surprising because they are inconsistent with previous research (Fazio, 1995).

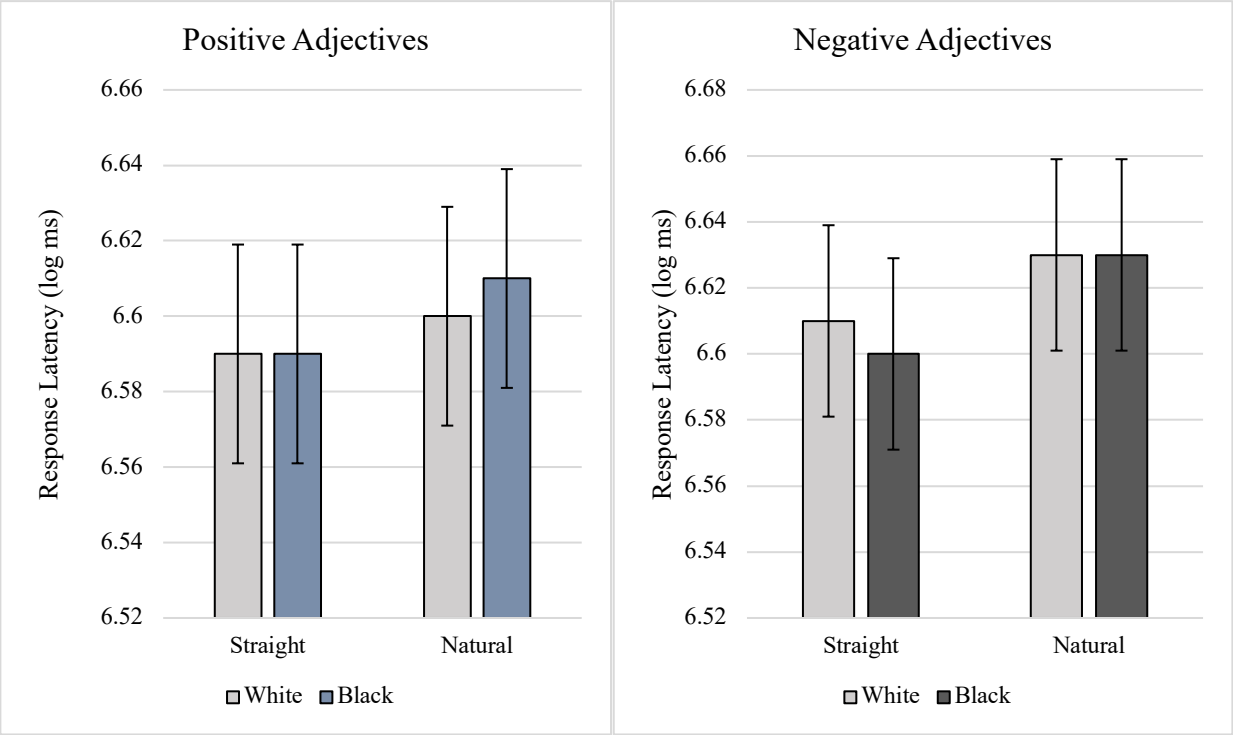


Figure 2. Predicted three-way interaction between race, hair, and valence on response latency in Study 1. Error bars represent ± 1 standard error

My primary hypothesis predicted that this stereotype activation would be stronger for Black women with natural hairstyles. However, I did not find a significant three-way interaction between hair, race, and valence. In other words, there was no significant difference between photos of Black women with natural hair paired with negative adjectives and Black women with straightened hair paired with negative adjectives. Unexpectedly, a significant main effect of hairstyle did emerge such that participants were quicker to respond to targets with straight versus natural hairstyles, regardless of the race of the target or the valence of the trait adjective. One potential explanation of these findings could be due to the visual features of the stimuli. Regardless of target race, the curly hair was visibly more noticeable than the straight hair in the stimuli. Thus, participants may have been more distracted by the targets' hair in the natural hair condition, leading to a slower response time on these trials.

During data collection for Study 1, I hypothesized that if Black women with natural hair heightened automatic stereotype activation, then a positive social cue may mitigate the effects of natural versus relaxed hair. Therefore, I simultaneously prepared a second study that examined the effects of a social cue on stereotype activation. I operationalized a social cue via facial expressions. Positive facial expressions have shown to mitigate stereotype activation and application (Hack, 2014). Because smiling is associated with warmth and favorable traits (Hack, 2014), a smiling facial expression may mitigate negative stereotyping associated with Black women. Therefore, in Study 2, I predicted that the heightened stereotype activation toward Black women with natural (versus relaxed) hair would only emerge when the target was displaying a neutral, but not smiling, facial expression.

Study 2

Participants

Participants were 120 White, non-Hispanic undergraduates who attended a large Midwestern university. Three participants were excluded for not completing the entire study and 12 participants were excluded for not identifying as non-Hispanic or White. Thus, the reported analyses included 105 participants. All participants received partial class credit in exchange for their participation. Participants self-reported their gender identity (50.9% male, 49.1% female), age (M =18.93, SD = 1.95), and political ideology (43.1% liberal, 32.7% conservative, 24.1% independent). All participants provided consent at the beginning of the study.

Design and Power

In Study 2, I replaced the target race manipulation in Study 1 with the social cue manipulation. Thus, only Black targets were used in this reaction time task. This study used a 2 (hair of target: straight versus natural) x 2 (valence of adjective: positive versus negative) x 2 (social cue: smile versus no facial expression) within-subjects design. A power analysis determined this design had 80% power to detect an effect size of d = .23 for the hypothesized three-way interaction between hairstyle, adjective valence, and social cue.

Materials

Study 2 used the same photoset and trait adjectives as described in Study 1. However, Study 2 only included Black target individuals in the reaction time task. Each target was photographed with two different hairstyles (natural versus relaxed) and with two different facial expressions (neutral versus smiling). Thus, Study 2 featured 24 Black targets, each of which were photographed with either natural hair and a neutral expression, natural hair and smiling, relaxed hair and a neutral expression, or relaxed hair and smiling.

Measures

The evaluative priming procedure, trial structure, and duration of the task were identical to Study 1. In Study 2, each trial manipulated the hairstyle of the target, the facial expression of the target, and the valence of the trait adjective. Additionally, Study 2 also collected the self-report measures from Study 1 including modern racism ($\alpha = .83$), bias awareness ($\alpha = .76$), internal motivation to respond without prejudice ($\alpha = .59$), external motivation to respond without prejudice ($\alpha = .99$) , and previous outgroup contact ($\alpha = .99$)

Demographics. At the end of the study, participants self-reported their age, race, gender, ethnicity, primary language, and political ideology. Political ideology was transformed into a 7-point scale (1 = *Very liberal,* 7 = *Very conservative*).

Results

Data Preparation

In line with Study 1, an initial analysis of participants' response times demonstrated extreme right skewness ($G_1 = 10.50$). Thus, all reaction times underwent a log transformation which resulted in an acceptable skewness ($G_1 = 0.37$) and a visual inspection of the Q-Q plot supported a normal distribution of the data. All participant trials were used in the analyses and the average accuracy score was high ($M = 92\%$, $SD = 8\%$).

Analytical Strategy

The ICC for Study 2 was $\rho = .82$. To test my primary hypotheses, I used HLM where reaction time was modeled as a function of target facial expression (smiling versus neutral), hairstyle (natural versus straight), and trait adjective (positive versus negative), and their respective two- and three-way interactions. Again, a random intercept accounted for the random effect of participant at level two.

Results

In Study 2, I hypothesized that the automatic stereotype activation for Black women with natural versus relaxed hairstyles would vary depending on facial expression. Specifically, I predicted that, for negative trait adjectives, the difference in response times for Black women with natural versus straightened hair would be less when the target was smiling versus exhibiting a neutral facial expression. Thus, I predicted a three-way interaction between hairstyle, social cue, and the valence of the trait adjective.

The full results of the model are displayed in Table 2. Regarding main effects, there was no significant main effect of hairstyle or facial expression on participants' response times. However, a significant main effect of valence emerged such that participants were quicker to categorize positive adjectives ($M = 6.58$) than negative adjectives ($M = 6.62$), $F(1, 721) = 37.24$, $p < .001$. This main effect of valence is consistent with the results from Study 1.

A two-way interaction emerged between facial expression and valence (see Figure 3), $F(1, 721) = 5.40$, $p = .020$. To decompose this interaction, I conducted pairwise comparisons within each level of the social cue manipulation. When the Black target was smiling, participants were quicker to respond to positive adjectives ($M = 6.57$) than negative adjectives ($M = 6.63$), $t(721) = 5.96$, $p < .001$. However, when the target displayed a neutral facial expression, the magnitude of this effect was smaller, yet still statistically significant, such that participants were quicker to respond to positive adjectives ($M = 6.59$) than negative adjectives ($M = 6.62$), $t(721) = 2.67$, $p = .007$. This finding is consistent with priming research because it suggested that positive (versus neutral) facial expressions facilitated quicker response times toward positive traits.

Table 2
Study 2 Main Effects and Interactions Table.

Model Term	*F*	df	*p*
Valence	37.24	721	< .001
Hair Type	0.46	721	.498
Facial Expression	0.62	721	.432
Facial Expression *Hair Type	0.34	721	.560
Facial Expression*Valence	5.40	721	.020
Hair Type*Valence	0.60	721	.439
Facial Expression* Hair Type*Valence	0.04	721	.847

Note. A hierarchical linear model accounted for the random effect of participant on response latency.

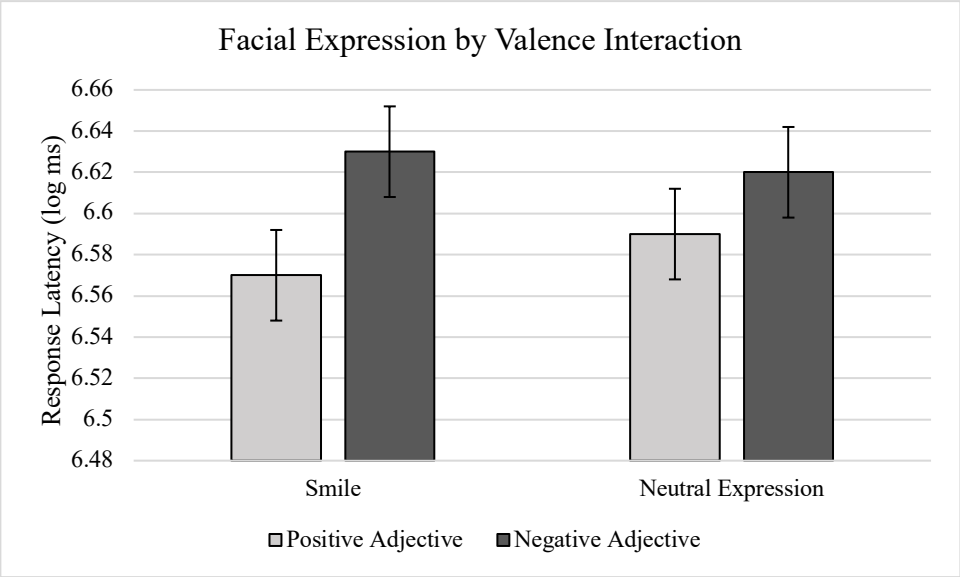


Figure 3. Interaction between facial expression and adjective valence on response latency in Study 2. Error bars represent ± 1 standard error

I next turned to my primary hypothesis which concerned the three-way interaction between facial expression, hairstyle, and valence of the trait adjective. The results showed that this three-way interaction was not statistically significant $F(1,721) = 0.03$, $p = .847$. Regarding Figure 4, these results suggested that the difference in response times to negative trait adjectives as a function of hairstyle did not depend on whether the target was smiling or exhibiting a neutral facial expression. In line with Study 1, these results suggested that the target's hairstyle did not moderate the automatic activation of stereotypes from memory.

Exploratory Analyses

Given the results did not support my primary hypothesis, I next conducted exploratory analyses using the individual differences collected at the end of the study. Using HLM, I tested if the three-way interaction between social cue, hair, and valence depended on individual differences. To do so, I mean-centered each individual difference and tested the significance of the cross-level interaction with each individual difference. The results showed that the three-way interaction was not further moderated by participants' Modern Racism $F(1, 722) = 0.01$, $p = .935$, IMS, $F(1, 722) = 0.01$, $p = .950$, EMS, $F(1, 722) = 1.68$, $p = .190$. Bias Awareness, $F(1, 722) = 1.63$, $p = .200$, nor the extent of previous outgroup contact, $F(1, 722) = 1.40$, $p = .230$.

Discussion

In Study 2, I predicted that a positive social cue would mitigate the effects of hairstyle on stereotype activation among Black individuals. When participants saw photos of Black women with smiling faces, they were quicker to react to positive words than when they saw a neutral face with positive words. This is consistent with previous research on the evaluative priming effect (Fazio, 1995). However, the hypothesized three-way interaction was not statistically

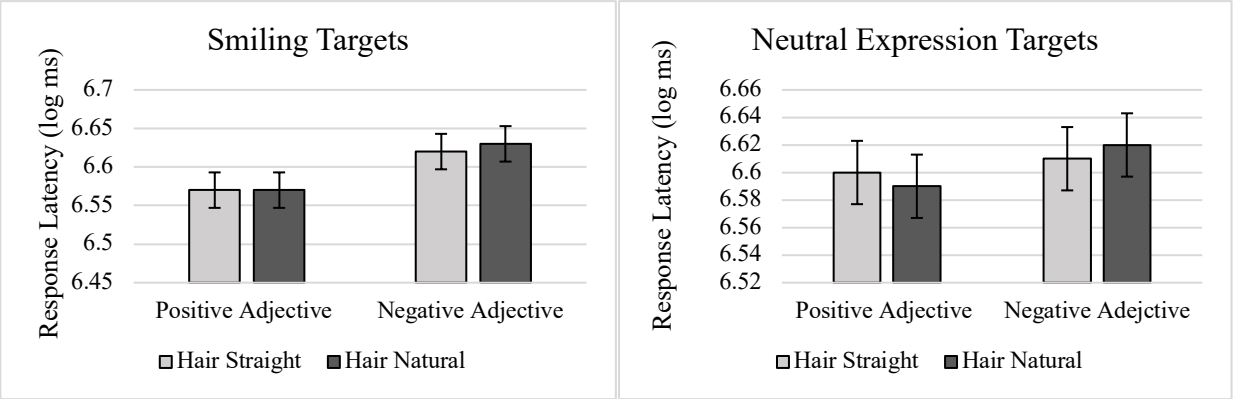


Figure 4. Three-way interaction between facial expression, hair, and valence on response latency in Study 2. Error bars represent ± 1 standard error

significant. These results suggested that the target's facial expression did not moderate participants' reaction times to Black targets with natural versus straightened hair.

General Discussion

The goal of this study was to identify differences in automatic stereotype activation as a function of individuals' race and their hairstyle. Previous research suggests that stereotype activation is stronger for people who are perceived as more prototypical members of their social groups (Ma & Correll, 2011). In this study, I theorized that natural hair may serve as a prototypical cue for Black women. Based on this research, I hypothesized that automatic stereotype activation would be stronger for images of Black women with natural hair than Black women with straightened hair.

Based on the results of Fazio et al. (1995), I first predicted that encountering an image of a Black (versus White) individual would facilitate response times to a negative (versus positive) word. However, the results of Study 1 did not support this effect. A main effect of valence emerged such that participants were quicker to categorize positive words compared to negative words. However, this finding was not further moderated by the race of the target. Thus, encountering a Black (versus White) target did not facilitate a quicker response time to negative (versus positive) traits.

My primary hypothesis predicted stronger stereotype activation for Black women with natural hair compared to Black women with straightened hair. However, the results of Study 1 did not support this hypothesis. Participants' speed in categorizing negative trait adjectives did not vary by whether they previously encountered photos of Black women with natural versus relaxed hair. Unexpectedly, a significant main effect of hairstyle did emerge such that participants were quicker to respond to targets with straight versus natural hairstyles. One

potential explanation of these findings could be due to the visual features of the stimuli. Regardless of target race, the curly hair was visibly more noticeable than the straight hair. Thus, participants may have been more distracted by the targets' hair in the natural hair condition, leading to a slower response time. Therefore, these results may be attributed to a methodological feature of the task rather than a psychological process.

I was still interested in the relationship between hair and valence in Study 2, however, I also predicted that facial expression may impact stereotype activation. Based on research about the "Angry Black Woman" stereotype (Walley-Jean, 2009), I predicted that stereotype activation would be diminished in photos of Black women with smiling facial expressions. Critically, this hypothesis was created before data collection for Study 2 had completed. In Study 2, the results showed that the main interaction hypothesis between hair type, valence, and facial expression was not statistically significant. However, this was not surprising because the results of Study 2 depended on significant results in Study 1. These findings suggested that the target's facial expression did not moderate participants' reaction times to Black targets with natural versus straightened hair. However, a two-way interaction emerged between facial expression and valence. These results indicated that encountering a smiling individual facilitated participants' abilities to correctly categorize a positive (versus negative) trait.

There are some limitations of this study that should be noted. To ensure that I used trait adjectives that were perceived as stereotypical of Black women, I pilot-tested all adjectives used in the evaluative priming task. However, one limitation of my stimuli was the extent to which each adjective was perceived as positive versus negative. Regarding Table 3, participants varied in how easily they were able to categorize each adjective as positive versus negative. While some adjectives were easily categorized (e.g., "rude", "pretty"), other adjectives were perceived as

more ambiguous to participants (e.g., “assertive”, “bold”). This ambiguity could lead to noisy reaction time data if participants hesitate before categorizing certain adjectives as good or bad.

Table 3
Mean Reaction Times for Each Trait Adjective in Study 1.

Adjective	Mean (ms)	SD
Aggressive	913.55	580.05
Assertive	1105.24	1007.66
Attractive	834.46	720.87
Bold	994.5	777.3
Bossy	922.52	669.66
Confident	843.66	744.92
Dumb	800.56	1005.63
Funny	789.84	667.51
Ghetto	791.87	694.12
Hostile	849.2	675.15
Ignorant	918.56	698.65
Independent	866.14	622.29
Lazy	843.25	676
Likable	794.26	739.7
Loud	949.65	606.3
Maternal	760.78	404.3
Outgoing	838.39	598.79
Poor	793.13	681.09
Powerful	885.39	808.67
Pretty	749.09	525.82
Promiscuous	915.31	913.55
Rude	763.38	454.76
Sassy	897.15	632.58
Strong	805.49	562.57

The increased measurement error would make it difficult to identify effects of the manipulation and may explain the wide error bars in Figure 2.

Another limitation was that the present study recruited undergraduate students as a sample. Because the hair stereotyping that occurs in everyday life is mostly from older adults in supervisory positions (e.g., managers, principals, superintendents), there may be a difference in stereotype activation expression depending on age group. This study made the assumption that natural hair is a prototypical characteristic for Black people, however, this idea has not been empirically tested. In other words, it is unclear whether natural hair serves as a cue of prototypicality among White perceivers. Future research could assess this assumption by showing White participants photos of Black women with straightened and natural hair and then asking them to rate the women's ethnic identification (e.g., "How strongly do you think this person identifies as a member of their racial or ethnic group?"). If natural hair is perceived as a prototypical cue, I would hypothesize that participants would estimate Black targets with natural hair to more strongly identify with their racial group than Black targets with relaxed hair.

It is unclear why the interaction between race and valence did not replicate from the original Fazio et al. (1995) study. One possible explanation may be that the original study was conducted in 1995 while data collection for the current study completed in 2019. In the debriefing sessions, most participants reported knowing the study had something to do with race, discrimination, or stereotyping. These results could suggest that a different social climate may be responsible for the absence of a stereotype priming effect. With the rise of technology and access to the internet over the past two decades, current college students may have different attitudes towards race than college students in the 1990s. This may also explain why the cover story was not as effective for this study. Participants may be more aware of racial tensions due to their

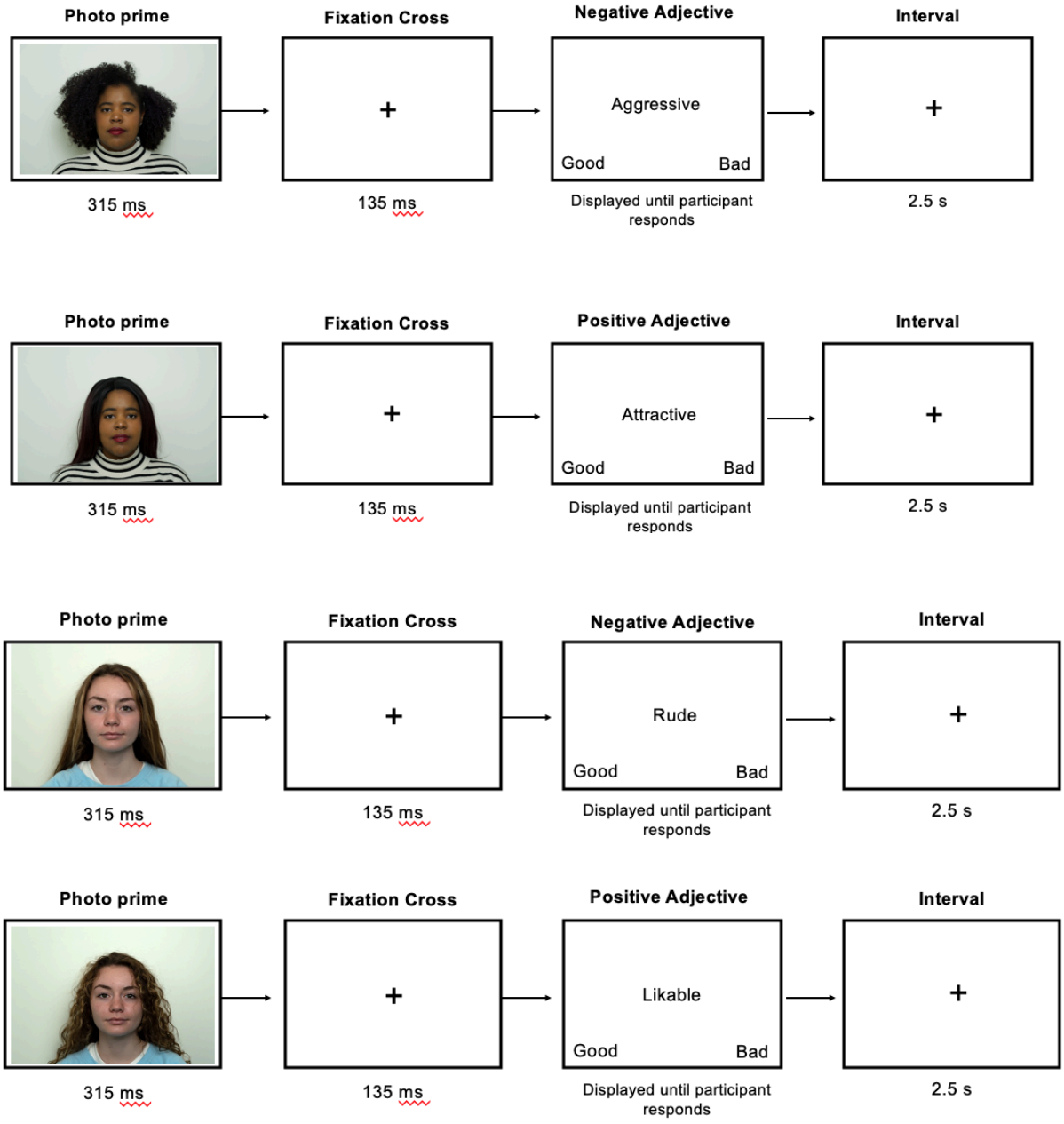
exposure to information via technology, leading to an easier identification of the study's true purpose. If participants know the true meaning of the study, they may be motivated to suppress prejudiced ideas in order to adhere to social norms (Crandall & Eshleman, 2002), leading to inaccurate data. By suppressing prejudices attitudes, I would have difficulty accurately measuring stereotype activation.

Future research should address these limitations by utilizing a different cover story or adding more distractor tasks to prevent participants from discovering the true purpose of the study. Future studies could also include a wider participant age range to find possible stereotype activation variation depending on age.

Conclusion

By understanding the link between stereotyping and natural hair discrimination, scientists can influence public policies to ensure a more equitable society for Black women. While some recent laws have protected against hair discrimination in New York and California (Griffith, 2019; Wilson & Díaz, 2019), hair discrimination is still legal in most of the country. Data suggests that one in five Black women feel pressured to wear their hair in a straightened style compared to one in ten White women who feel the same way. The same study indicated that a majority of participants "show[ed] implicit bias against Black women's textured hair" (Johnson et al., 2017). The present study is an important step in guiding activists and policymakers to an effective way to address hair discrimination. Future research should focus on identifying how implicit bias can influence prejudiced behavior, to better understand what causes some people to discriminate Black women on the basis of hair.

Appendix A: Example Trials in Study 1



Appendix B: Trait Adjectives Used in Studies 1 and 2

Positive Valence	*Negative Valence*
Independent	Strong
Assertive	Funny
Outgoing	Confident
Pretty	Powerful
Bold	Maternal
Likable	Attractive
Loud	Sassy
Rude	Aggressive
Lazy	Poor
Hostile	Bossy
Ignorant	Ghetto
Dumb	Promiscuous

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